Claims:

1. A process for producing monolithic supported catalysts for gas-phase oxidation by coating the catalyst support by means of a suspension, wherein the latter comprises catalytically active composition and one or more surfactants of the formula

$$R_nY_mX$$

where R is the hydrophobic part(s) of the surfactant and n is 1, 2 or 3; Y is the hydrophilic part of the surfactant and m is 0, 1, 2 or 3, and X is the hydrophilic head group of the surfactant.

2. The process as claimed in claim 1, wherein the surfactant content is from 1 to 10% by weight.

3. The process as claimed in claim 1 or 2, wherein the head groups X present in the surfactants are functional groups selected from among carboxylates, polycarboxylates, phosphates, phosphonates, sulfates and sulfonates.

4. The process as claimed in claim 3, wherein all or some of the functional groups of the head group X are present as free acid groups, ammonium salts or alkaline earth metal salts.

5. The process as claimed in any of claims 1 to 4, wherein the hydrophilic group Y is bound to the central atom of the head group X either directly or via an oxygen.

6. The process as claimed in any of claims 1 to 5, wherein the hydrophobic groups R of the surfactants used are bound to the head group via a hydrophilic group Y.

7. The process as claimed in any of claims 1 to 6, wherein the hydrophobic parts R of the surfactants used are saturated, unsaturated or branched alkyl radicals with carbon building blocks having from 5 to 30 carbon atoms and are bound either directly or via aryl groups to the hydrophilic part Y or the head group X.

8. The process as claimed in any of claims 1 to 7, wherein the hydrophilic radicals Y of the surfactants used comprise polymeric alkoxy units whose degree of polymerization is from 1 to 50 monomer units.

9. The process as claimed in any of claims 1 to 8, wherein one or more surfactants selected from the group consisting of calcium alkylarylsulfonates, alkylphenol ethoxylates, ammonium alkylarylsulfonates, calcium dodecylbenzenesulfonate, polyethoxy(dinonyl phenyl ether phosphate), polyoxoethylene(lauryl ether phosphate), polyethoxy(tridecyl ether phosphate), calcium dodecylbenzenesulfonate, tridecyl phosphate esters, ethoxylated phosphated alcohols, alkyl polyoxyethylene ether phosphate, ammonium nonyl phenyl ether sulfate, are used.

10. The process as claimed in any of claims 1 to 9, wherein the catalytically active composition is produced from one or more types of TiO_2.

11. The process as claimed in claim 10, wherein the catalytically active composition further comprises V_2O_5 as additional component.

12. The process as claimed in claim 10 or 11, wherein the catalytically active composition comprises promoters.

13. The process as claimed in any of claims 1 to 12, wherein the catalyst supports used are one or more materials selected from the group consisting of cordierite, silicates, silicon dioxide, silicon carbide, aluminum oxide, aluminates, metals or metal alloys.

14. The process as claimed in any of claims 1 to 13, wherein the catalyst support bodies used are honeycombs or supports having open and/or closed cross-channel structures.

15. The process as claimed in claim 14, wherein the catalyst support bodies used are honeycombs having a cell density, i.e. a number of channels, of from 100 to 400 csi (cells per square inch).

16. The use of a monolithic supported catalyst obtainable by the process as claimed in any of claims 1 to 15 in an adiabatic reactor in combination with an isothermally operated reactor for preparing phthalic anhydride from o-xylene.

17. The use of a monolithic supported catalyst obtainable by the process as claimed in any of claims 1 to 15 in an adiabatic reactor in combination with an isothermally operated reactor for preparing phthalic anhydride from naphthalene.

18. The use of a monolithic supported catalyst obtainable by the process as claimed in any of claims 1 to 15 in an adiabatic reactor in combination with an isothermally operated reactor for preparing phthalic anhydride from o-xylene/naphthalene mixtures.

19. The use of a monolithic supported catalyst as claimed in any of claims 16 to 18 in an adiabatic reactor having upstream gas cooling in combination with an isothermally operated reactor.

20. The use of a monolithic supported catalyst as claimed in any of claims 16 to 19 in an adiabatic reactor having upstream gas cooling, where gas cooling and the reaction are carried out in a joint apparatus, in combination with an isothermally operated reactor.

21. The use of a monolithic supported catalyst as claimed in any of claims 16 to 20 in an adiabatic reactor having upstream gas cooling and downstream gas cooling, where gas cooling and the reaction are carried out in a joint apparatus, in combination with an isothermally operated reactor.

22. A catalyst obtainable by coating the catalyst support by means of a suspension, wherein the latter comprises catalytically active composition and one or more surfactants of the formula

$$R_nY_mX$$

where R is the hydrophobic part(s) of the surfactant and n is 1, 2 or 3; Y is the hydrophilic part of the

surfactant and m is 0, 1, 2 or 3, and X is the hydrophilic head group of the surfactant.

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